CAUSALITY LINKS BETWEEN ASSET PRICES AND CASH RATE IN AUSTRALIA

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Abstract

This paper seeks to empirically investigate the causal linkages between asset prices and Australia's cash rate. Quarterly data spanning the period 1980:1 and 2002:4 were employed in the analysis. The Johansen MLE multivariate co-integration procedure reveals that Australia's cash rate and key determinants are co-integrated, and thus share a long-run equilibrium relationship. The Stock-Watson dynamic OLS model (DOLS), which is superior to a number of alternative estimators, finds empirical evidence of significant long run relationship between Australia's cash rate and house prices, stock market prices, inflation rate and Australia's real gross domestic product, and United States cash rate and real gross domestic product. The US cash rate Granger causes Australia's cash rate. Australia's stock market price Granger causes Australia's house prices. The Granger causality test reveals a unidirectional causality from house prices to Australia's cash rate, which is contrary to the conventional wisdom of a bi-directional causality running from the cash rate to house prices.

JEL classification: C32, E47, E52
Keywords: Australia, cash rate, house prices, cointegration, Stock-Watson DOLS

1.Introduction

The impact of changes in the cash rate on housing prices and stock prices and vice versa depends upon how the changes are transmitted through the economy. As highlighted by Stevens (2001), although

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monetary policy influences the housing market, house prices also impact on decisions to adjust the cash rate through their likely effect on future inflation. In the last two decades, the increased activity in Australia's housing market, particularly rising house prices, as well as housing markets abroad has generated increased research interest (see for example, Cecchetti *et al*. (2002), Filardo (2001), and Bernanke and Gertler (1999) because of the important role housing plays in economic growth and welfare of Australians. The surge in house prices in recent times is a concern for policymakers in Australia because, as Wade and Garnaut (2003) note, it has the potential to cause far more damage than the stock market crash.

While movements in financial wealth have been dominated by movements in stock market wealth, housing wealth has been the single most important component of non-financial wealth in household portfolios in recent times (Deutsche Bank, 2002). Since the deregulatory reforms of the early 1980s, Australia's financial markets have been highly integrated with global financial markets. Consequently, Australia's monetary policy evolved from a framework of money targeting in the 1980s to one of inflation targeting in the 1990s and beyond (Grenville, 1997). As an operating objective, the Australian monetary policy is directed at affecting the interest rate paid on overnight funds (the "cash rate") (Lowe, 1995). Price stability, while not the Reserve Bank's only objective, remains its primary one. The current monetary policy stance in Australia is aimed at achieving a medium term inflation target of 2-3% on average over the course of the cycle, and the instrument used to achieve this is the market interest rate on overnight funds or 'the cash rate'. This short-term cash rate forms the basis of all other interest rates in the economy (Lowe, 1995). Monetary policy, through this transmission from the official cash rate to market interest rates, plays an important role in the determination of house prices and stock market prices.

The volatility in the housing and stock markets in recent times present many challenges to policymakers. The first relates to the reactive vs. forward-looking nature of the monetary policy when making decisions to adjust the cash rate. Here, a reactive monetary policy refers to the use of a reaction function as a simple rule in making decisions about policy response to changes to current and past values of key economic variables. In contrast, a forward-looking monetary policy is one where policy decision is based on forecasts of the target variables (see also, de Brouwer and O'Regan, 1997). de Brouwer and O'Regan (1997) argue that by basing decisions on forecasts instead of current or past values the efficiency of policy is enhanced given that the variability in inflation and output is reduced because the forecasts permit one to account for adjustment lags, allowing for adjustments sooner for stabilising the economy. The second, which has featured in policy debates in recent times, is the transmission of adjustments in the cash rate to other interest rates and the housing and stock market prices. The third issue is the role of monetary policy in preventing or 'softening the blow' of property and asset price bubbles. While there has been extensive research investigating the impact of changes in the cash rate and market interest rates on property and financial assets prices (see for example, Ellis, 2002; Sutton, 2002; Smets, 1997; Edey and Romalis, 1996), little attention has been devoted to examining the impact of house and stock market prices on the cash rate.

This reverse causality is of considerable importance for the following reason. Movements in property prices, particularly house prices and stock market prices could impact on consumer spending and investment as well as inflation expectations and financial system stability (Voth, 2000; Kent and Lowe, 1997). Now, if there is a sudden reversal in prices because the imbalances created by the bubble start to unwind, then this could lead to instability within the economy. Understanding of the two-way relationship between the cash rate and house prices and stock prices can improve the effectiveness of monetary policy in achieving its objectives. The focus of this study is to empirically investigate the causal linkages between asset prices and Australia's cash rate. We draw upon some latest advances in econometric time-series modelling and use these techniques to reassess causal linkages between Australia's cash rate and key determinants. In particular, we adopt a test for unit root of Dickey and Fuller (1977) and Phillip and Perron (1988), and a more robust test for multivariate co-integration provided by Johansen

(1988, 1991). Extending the analysis, we estimate Stock-Watson dynamic OLS (DOLS) (Stock and Watson, 1993) model of Australia's cash rate. This paper contributes to the existing literature by taking a broader perspective in investigating the relative importance of two wealth components – housing and stock market wealth – using quarterly data for explaining Australia's cash rate. The findings of this study provides useful information to answer the important question of whether or not monetary authorities should respond directly to asset price movements or merely consider them for their informational value in terms of future inflation and output. The rest of the paper is organised as follows. Section 2 introduces the econometric model employed in the analysis, and provides a description of the sources of data. Section 3 reports and discusses the empirical results. Section 4 concludes.

2. The Model

The empirical work is dictated by the typical formulation postulated by economic theory. When making decisions to adjust the cash rate, the Reserve Bank of Australia considers a number of variables and indicators. The factors leading to a particular decision are outlined in the *Statement on Monetary Policy* issued quarterly. These factors include international economic developments, international and foreign exchange market conditions, domestic economic activity, balance of payments, domestic financial markets, assessment of financial conditions overall, and inflation trends and prospects (RBA, 2003). Based on extensive literature and information contained in the Reserve Bank of Australia's *Statement of Monetary Policy*, a cash rate model is specified that relates cash rate to house and stock market prices and other key determinants. Taking these factors into consideration the empirical model of determinants of Australia's cash rate is given by equation (1).

$$\begin{aligned} CRAUS_t = {} & \beta_0 + \beta_1\ AUSRGDP_t + \beta_2\ HPI_t + \beta_3\ CPIEH_t + \beta_4\ SPI_t + \beta_5\ EXR_t \\ & + \beta_6\ USRGDP_t + \beta_7\ CRUS_t + \varepsilon_t \end{aligned} \tag{1}$$

where CRAUS is the Australia's cash rate, AUSRGDP is real gross domestic product for Australia, HPI is house price index, CPIEH is consumer price index excluding housing, SPI is share price index, EXR is the exchange rate between Australia and the US dollar, USRGDP is United States real gross domestic product, and CRUS is United States cash rate.

The empirical analysis uses quarterly time-series data spanning the period 1980:Q1 to 2002:Q4 to investigate the impact of house prices and stock market prices on the cash rate in Australia. All Australian data were obtained from the Reserve Bank of Australia's *Bulletin Statistical Tables*, with the exception of house price index which was obtained from the Australian Bureau of Statistics (ABS) Catalogue 6416.0 (ABS, 2003). Data on GDP and cash rate for United States were obtained from the Bureau of Economic Analysis (BEA, 2003) and the Federal Reserve Board (FRB, 2003), respectively. The summary statistics of the logarithmic values of the variables employed in the analyses are presented in Table 1.

Table 1: Descriptive statistics of the log of variables

Statistic	craus	crus	hpi	spi	ausr gdp	usr gdp	cpieh	exr
	92	92	92	92	92	92	92	92
Mean	2.18	1.83	4.53	4.56	11.70	15.73	2.24	-0.29
Std. Dev.	0.49	0.52	0.38	0.58	0.22	0.21	0.81	0.20
Maximum	2.94	2.88	5.33	5.36	12.09	16.07	3.29	0.16
Minimum	1.45	0.37	3.91	3.40	11.35	15.39	0.26	-0.68
Skewness	0.01	-0.46	-0.00	-0.48	0.11	-0.02	-0.66	0.46
Kurtosis	1.43	3.51	1.88	2.09	1.86	1.89	3.05	3.50

The standard deviation of the CPIEH variable is the largest and that for EXR variable is the lowest. Table 1 also shows estimates of skewness and kurtosis of standardised residuals. The results indicate non-zero skew ness with the exception of HPI with no observable kurtosis. With the exception of the Australian cash rate (CRAUS), the exchange rate (EXR), and real gross domestic product for Australia (AUSRGDP) and house price index (HPI), all other variables are negatively skewed. HPI has skew ness equal to zero.

The estimated kurtosis statistic of the US cash rate variable is greater than 3 indicating that the distribution of this variable is thicker, while the other variables have excess kurtosis variable less than 3, suggesting that the tails of the distribution are thinner than the normal distribution. The exchange rate variable,EXR, has kurtosis equal to 3.

3. Results

Before proceeding to estimate the cash rate function, unit root tests were performed to determine the time-series properties of the data employed in the analysis. This is to ensure that the data are stationary and therefore avoid spurious results. The testing procedure used is the augmented Dickey-Fuller (ADF) (Dickey and Fuller, 1979) and Phillip-Perron (PP) (Phillips-Perron, 1988) tests. The auxiliary regression is run with an intercept and a time trend and is specified as

$$\Delta y_t = a_0 + a_1 y_{t-1} + a_2 t + \sum_{j=1}^{P} g_j \Delta y_{t-j} + e_t \tag{2}$$

where y_t is the variable, whose time-series properties are being investigated, Δ is the difference operator, and where ε_t is the random error term with t = 1… N is assumed to be Gaussian white noise. The augmentation terms are added to convert the residuals into white noise without affecting the distribution of the test statistics under the null hypothesis of a unit root. As Alba (1999) notes, the ADF and PP tests have a null of unit root against the alternative of trend stationary.

The usefulness of the PP test over the ADF is that it allows for the possibility of heteroscedastic error terms (Hamilton, 1994). For the PP test, the maximum lag length was chosen based on the Newey-West criteria (Newey and West, 1994). Table 2 reports the ADF and the PP test results of variables in levels and first difference. The ADF test reveals that all the variables are non-stationary in levels for the ADF and PP tests. The results also indicate that, for the ADF test, with the exception of CPIEH, all other variables are stationary in first difference. The PP test results indicate that all the variables are stationary first difference at the 1 percent level. Next, we proceed to test for possible cointegrating relationship(s) between variables in

Australia's cash rate function. Two or more variables are said to be cointegrated, i.e., they exhibit long-run equilibrium relationship(s), if they share common trend(s).

Table 2: Results of unit root tests on logs of variables

Variable	ADF*		PP*	
	Constant with trend		Constant with trend	
	Levels	First Difference	Levels	First Difference
CRAUS	-2.474	-6.346	-2.524	-8.728
HPI	-1.434	-4.094	-1.377	-6.318
SPI	-2.354	-6.698	-2.354	-8.926
AUSRGDP	-2.697	-5.681	-2.382	-6.457
USRGDP	-2.250	-5.087	-2.621	-7.172
CRUS	-2.044	-5.422	-1.882	-6.426
CPIEH	-0.321	-1.723	-3.030	-4.580
EXR	-2.255	-6.195	-2.162	-8.468

Note: *Critical values are -4.16, -3.50 and -3.18 at the 1%, 5% and 10% levels, respectively

The co-integration among variables rules out the possibility of the estimated relationships being "spurious". Although Engle and Granger's (1987) two-step approach for testing for cointegration is used extensively in the literature, this study adopts the Johansen-Juselius multivariate MLE co-integration testing procedure (Johansen, 1991, 1995). As Masih and Masih (2000) note, unlike the Engle-Granger approach, the Johansen procedure does not, *a priori*, assume the existence of at most a single cointegrating vector; rather it tests for the number of cointegrating relationships. Further, unlike the Engel-Granger procedure, which is sensitive to the choice of the dependent variable in the cointegrating regression, the Johansen procedure assumes all variables to be endogenous. For the Johansen test, we employ the Max-eigenvalues test, which is based on the comparison of $H_0(r\text{-}1)$ against the alternative $H_1(r)$. For the Johansen test, we employ the eigenvalues test. Since the results of this test depends on the lag length of the vector error correction model (VECM), we use the Akaike's Final Prediction Error Criteria (FPE) (see, Cathbertson, *et al.*, 1992, and for a survey, Muscatelli and Hurn, 1992) to evaluate the robustness of the empirical results. Table 3 reports the estimated eigenvalues and corresponding critical values due to Osterwald-Lenum (1992). We observe that the null hypothesis of no cointegrated vectors is conclusively rejected, implying that there is at least one cointegrating vector in the model, given that the Max-eigenvalues test indicates at least four cointegrating equation(s) at a 1 percent level. This finding confirms the existence of an underlying long-run stationary steady-state relationship between the dependent and explanatory variables in logarithm. In order to obtain the long-run coefficients, we proceed to use the Stock-Watson dynamic OLS framework.

Table 3: Results of cointegration tests of Australia's cash rate model

Cash rate model Series: CRAUS HPI SPI AUSRGDP USRGDP CRUS CPIEH EXR						
Hypothesis		Eigenvalue	Likelihood ratio	5 % Critical value	1 % Critical values	Hypothesized No of CE(s)
H_0	H_1					
r= 0	r >0	0.69	310.33	182.82	196.08	None **
r≤ 1	r >1	0.54	213.35	146.76	158.49	At most 1 **
r≤ 2	r >2	0.48	150.48	114.90	124.75	At most 2 **
r≤ 3	r >3	0.36	97.63	87.31	96.58	At most 3**
r≤ 4	r >4	0.30	60.90	62.99	70.05	At most 4
r≤ 5	r >5	0.18	31.60	42.44	48.45	At most 5
r≤ 6	r >6	0.11	15.52	25.32	30.45	At most 6
r≤ 7	r >7	0.07	6.00	12.25	16.26	At most 7

Notes: [a]The Osterwald-Lenum (1992) critical values. Asterisks (*) denotes rejection of the null hypothesis at a 5 percent level.

When sets of variables are co-integrated, then there exists an adjustment process of the variables towards the long-run equilibrium. The OLS estimator of the coefficients of the cointegrating regression is consistent, although it has a nonnormal distribution, and tests carried out results in invalid statistical inference. To overcome this, a number of estimators have been proposed in the econometric literature to estimate cointegrating coefficients. This study adopts the dynamic OLS (DOLS) estimator (Stock and Watson, 1993). The DOLS estimator of the cointegrating regression equation includes all variables in Equation (1) in levels, leads and lags of values of the change in the explanatory variables. The usefulness of this approach is that it allows for simultaneity bias and introduces dynamics in the specification of the model. Considering the large sample size, the current study estimates the following DOLS (Stock and Watson, 1993):

$$Y_t = \beta_0 + \beta_i X_t + \sum_{j=-p}^{p} \delta_j \Delta X_{t-j} + u_t \tag{3}$$

where Y_t is the cash rate, X_t is a vector of explanatory variables and Δ is the lag operator.

To ensure that the standard errors of the cointegrating regression equation has a standard normal distribution, we estimated the model using OLS and the standard errors were derived using the Newey and West's (1987) Heteroscedastic and Autocorrelation Consistent (HAC) covariance matrix estimator. These robust standard errors facilitate valid inferences to be made about the coefficients of the variables entering the regressors in levels. The coefficients of the explanatory variables in levels in Equation (2) denote the long-run cumulative multipliers, that is, the long-run effect on Y of a change in X. Table 4 reports the Stock-Watson DOLS long-run parameter estimates of Australia's cash rate regression equation. The model was estimated using Eviews 4.1 econometric package. The equation was estimated by including up to three leads and lags of the change in the explanatory variables. The Schwarz Bayesian Criterion (SBC) is used to select the appropriate lag length. Based on the results the smallest value occurred in the second period lag for SBC, hence the lag length of two was chosen. The final model reported includes only significant lead and lag regressors. The Breush-Godfrey Lagrange Multiplier test statistic was estimated to be 14.563 (*p*-value=0.0001), indicating the presence of autocorrelation. The DOLS model was re-estimated and corrected for autocorrelation using the Heteroscedastic Autoregression Consistent Covariances (HAC) method proposed by

Newey-West (1987). The high R^2-adjusted (goodness-of-fit) measure of the final DOLS model was 0.92 and this indicates a good fit of the data set. The calculated *F*-statistic of 65.57 (*p*-value=0.000) and is statistically significant at a 1 percent level. This indicates that the explanatory variables are jointly significant in influencing Australia's cash rate. The RESET test statistic is estimated to be 0.306 (*p*-value=0.580), suggesting that the model is correctly specified. The Jarque-Bera test statistic of 0.631 (*p*-value=0.729) indicates that the residuals are normally distributed. The CUSUM of squares test results also indicate no presence of structural break in the data series.

Table 4: The estimated Stock-Watson DOLS model for cash rate

Variable	Coefficients	t-statistics	Prob.
Constant	50.987	2.359	0.021
$\ln HPI_t$	-0.971	-1.938	0.057
$\ln AUSRGDP_t$	6.746	4.282	0.000
$\ln SPI_t$	0.601	2.483	0.016
$\ln CPIEH_t$	-0.459	-5.080	0.000
$\ln CRUS_t$	0.237	1.815	0.040
$\ln USRGDP_t$	-7.987	-3.748	0.000
$\ln EXR_t$	-0.684	-3.036	0.003
$\Delta \ln CPIEH_t$	-0.321	-2.222	0.030
$\Delta \ln AUSRGDP_{t-1}$	-5.671	-2.238	0.030
$\Delta \ln USRGDP_{t-1}$	7.240	3.132	0.003
$\Delta \ln SPI_{t+1}$	0.451	1.871	0.066
$\Delta \ln CPIEH_{t+1}$	-0.270	-2.582	0.012
$\Delta \ln EXR_{t+1}$	-0.692	-1.982	0.051
$\Delta \ln USRGDP_{t+1}$	-8.898	-4.478	0.000
$\Delta \ln SPI_{t+2}$	0.624	2.974	0.004
Diagnostic statistics[a]			
R^2-adjusted		0.92	
s.e.		0.13	
F-statistic		65.56	
RESET test statistic		0.306 (0.580)	
Jarque-Bera test for Normality		0.631 (0.729)	
Breusch-Godfrey LM test		14.563 (0.0001)	

Note: Values in parenthesis are *p*-values.

The coefficients of the variables reported in Table 4 present the long-run elasticities, evaluated at sample means, from estimated cash rate regression equation. The results indicate that the Australian cash rate is most responsive to changes in US real gross domestic product, Australia's real gross domestic product, Australia's exchange rate to U.S. dollar, house price index, stock price index, inflation rate and U.S. cash rate, in that order. The results reported in Table 4 indicate that the U.S. cash rate has a coefficient of 0.24 and U.S. real gross domestic product has a coefficient of -7.99. The results indicate that higher U.S. cash rate and real gross domestic product are associated with higher cash rate for Australia. This implies that an increase in the level of development in the U.S. causes the cash rate to fall in Australia. A possible explanation for this is that if the U.S. economy is booming then interest rates in Australia may be lowered to stimulate the domestic economy to be able to counteract the negative impact of growth in the U.S., hence the negative impact of US real GDP on Australia's cash rate. The house price and inflation rate has a negative impact on Australia's cash rate, estimated to be -0.971 and -0.459, respectively, while stock market price has a positive impact on Australia's cash rate and estimated to be 0.601. The negative impact of inflation rate on Australia's cash rate is consistent with that expected, because if the Reserve Bank intends to slow down the economy it would raise the cash rate. An important finding is the negative relationship between house prices and the cash rate. The result confirms the rise in the cash rate in Australia in the last few months by the Reserve Bank is expected to have a dampening effect on the housing market in Australia. Given the positive impact of the stock market price on Australia's cash rate, the rise in the cash rate in recent times could potential lead to an increase in the stock market price. The positive sign of Australia's real gross domestic product variable in the cash rate regression equation indicates that higher real GDP, which reflects level of economic growth, is associated with higher cash rate for Australia. This is consistent with *a priori* expectation. In summary, the results imply that Australia's cash rate and its determinants; Australia's house price index, real gross domestic product, stock price index and inflation rate, exchange rate, as well as U.S. cash rate and real gross domestic product are cointegrated or co-moving. The result establishes a long-run relationship using the DOLS estimation procedure.

Table 5 summarises the significant relationships after performing the Granger causality test. The key findings are summarised. The results indicate that there is a unidirectional causality from house prices to Australia's cash rate. This finding is consistent with those of Karantonis (1993), who also found that overall interest rates have no direct impact on Sydney's house prices. This result refutes the argument of Bernanke and Gertler (1999) that it is neither necessary nor desirable for policymakers to respond to changes in asset prices, by providing strong empirical evidence to the contrary. Another interesting finding is that stock market prices do not directly influence the setting of Australia's cash rate but rather indirectly through its influence on house prices in Australia.

The results reported in Table 5 indicate bidirectional causality between the cash rate and real gross domestic product and between cash rate and the rate of inflation in Australia, suggesting that changes in the Australia's cash rate influences economic growth and therefore the rate of inflation within the economy, as expected. The results of Table 5 also indicate the presence of unidirectional causality from Australia's real gross domestic product to house prices and exchange rates, from stock market prices to real gross domestic product and house prices, from exchange rates to house prices and stock market prices, and from real gross domestic product to exchange rate in Australia. The results demonstrate the importance of economic variables in Australia and United States as key determinants of Australia's cash rate. For example, there is bidirectional causality from United States real gross domestic product to Australia's cash rate and stock market prices, as expected. There is also Granger unidirectional causality running from U.S. cash rate to Australia's cash rate, United States real gross domestic product to Australia's real gross domestic product, from Australia's stock market prices and house prices to U.S. cash rate, and from Australian exchange rates to the setting of U.S. cash rate. There is however, a Granger unidirectional causality from cash rate to real gross domestic product in the United States.

Table 5: Summary of results from Granger causality test

Null Hypothesis:	F-statistics	Prob.
AUSRGDP ⇒ CRAUS	2.678	0.074
CRAUS ⇒ AUSRGDP	2.707	0.072
CRAUS ⇒ CPIEH	3.509	0.035
CPIEH ⇒ CRAUS	2.427	0.095
CRUS ⇒ CRAUS	2.463	0.091
HPI ⇒ CRAUS	4.783	0.010
USRGDP ⇒ CRAUS	4.438	0.015
CRAUS ⇒ USRGDP	2.873	0.062
CRUS ⇒ USRGDP	3.224	0.045
USRGDP ⇒ CRUS	3.413	0.038
HPI ⇒ CRUS	3.659	0.030
SPI ⇒ HPI	2.729	0.071
SPI ⇒ CRUS	2.426	0.094
EXR ⇒ HPI	5.452	0.006
SPI ⇒ USRGDP	5.802	0.004
USGDP ⇒ SPI	3.131	0.049
SPI ⇒ RGDP	4.172	0.019
AUSRGDP ⇒ EXR	3.722	0.028
USRGDP ⇒ AUSRGDP	7.474	0.001
EXR ⇒ SPI	5.247	0.007
EXR ⇒ CRUS	4.713	0.011

It is important to note that the result that U.S. cash rate Granger causes Australia's cash rate is not surprising since the Reserve Bank in its *Statements of Monetary Policy* pays close attention to movements in the cash rate of the US as well as and other countries. As a result, one would expect the U.S. cash rate to Granger cause Australia's cash rate. Notably, Australia's house prices and stock market prices do Granger cause US cash rate. This result probably reflects the spectacular growth of the Australian economy in a climate of slow growth or declining growth in most of the developed countries, and with Australia serving as a safe haven for investors. It is possible that the recovery of the United States economy could potentially reverse this trend. Given the importance of economic growth in the U.S. on Australian economy, it is not surprising that

U.S. real magnitudes, in particular, real gross domestic product and the cash rate, influences key economic variables in Australia. It is important to note also the significance of exchange rates of Australian dollar to U.S. dollar in influencing key economic variables in both Australia and United States. These findings are important because they are consistent with *a priori* expectation given that United States is a major exporting and importing country for Australia. With the recent Free Trade Agreement, it is expected that changes in the level of development in the U.S. would have a more significant impact on growth within the Australian economy.

4. Summary and Conclusions

This paper analyses the long-run relationships between Australia's cash rate and house prices and stock market prices using quarterly data spanning the period 1980 to 2002 and utilising the most reent techniques for unit root and co-integration tests, and dynamic model specification and estimation. The methodologies employed in the analysis include dynamic OLS estimation procedure. The information provided in this study is particularly useful for policymakers who want to anticipate future changes in the cash rate in response to changing economic conditions such as house prices and stock market prices. The results of this study yield several implications for policymakers and other key stakeholders including financial institutions, current and prospective homeowners, and property investors. The key findings of the study are summarised. First, the results show that both domestic and international economic conditions influences the setting of Australia's cash rate. The results suggest that slow growth of U.S. economy in recent past may have played an important role in exacerbating the rise in house prices in Australia. Second, the U.S. economic indicators of real gross domestic product and cash rate are found to be more significant than Australian economic variables in influencing Australia's cash rate. Third, the results of this study indicate that house prices and stock market prices play important roles in influencing the setting of Australia's cash rate. In conclusion, the results of this study demonstrate that house prices are important economic variable that needs to be considered in monetary policy decision-making process because of its unidirectional impact on Australia's cash rate and the level of economic development within the Australian economy. This result is important because it demonstrates that the use of cash rate as a policy instrument to achieve the objective of house price stability may not be effective; the cash rate can only affect it indirectly through its impact on exchange rates. It is therefore pertinent that policymakers take cogniscance of this fact when formulating and implementing monetary policy in Australia. However, exactly how house prices should be incorporated into monetary policy formulation for it to be most effective in achieving the intended objectives requires further investigation.

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